

LISTING OF CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application:

1. (currently amended) A method of detecting the presence of *Treponema pallidum* or anti-treponemal antibodies in a biological sample, comprising:

contacting an acidic repeat protein or one or more isolated, immunogenic *Treponema pallidum* peptide of the acidic repeat protein with an antibody-containing biological sample, wherein the acid repeat protein or isolated immunogenic *Treponema pallidum* peptide(s) of the acid repeat protein comprises the amino acid sequence

EVEDX₁PX₂VVEPASX₃X₄EGGER, wherein X₁ is A or V; X₂ is K or G; X₃ is E or G; and X₄ is R or H; and

detecting formation of a complex between the immunogenic protein or peptide and the antibody, wherein the presence of the complex indicates the presence of *Treponema pallidum*.

2. (previously amended) The method of claim 1, wherein the isolated, immunogenic *Treponema pallidum* peptide comprises an immunogenic repeat region of the acidic repeat protein.

3. (currently amended) The method of claim 1, wherein the immunogenic peptide comprises an amino acid sequence selected from the group consisting of SEQ ID NOs: 2, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 22, 24, 26, and conservative variations thereof.

4. (original) The method of claim 1, wherein the immunogenic peptide is encoded by a nucleotide sequence as shown in SEQ ID NOs: 1, 3, 5, 19, 21, 23, and 25.

5. (original) The method of claim 1, wherein the immunogenic peptide comprises an amino acid sequence having the sequence shown in SEQ ID NO: 15.

6. (original) The method of claim 1, wherein the *Treponema pallidum* is *T. pallidum* subspecies *pallidum*, *T. pallidum* subspecies *pertenue* (CDC-2 strain), *T. pallidum* subspecies *pertenue* (CDC-1 strain), or *T. pallidum* subspecies *endemicum*.

7. (previously amended) The method of claim 1, wherein detecting the presence of the complex indicates the presence of the disease syphilis, yaws, or bejel.

8. (previously amended) The method of claim 1, wherein the immunogenic peptide comprises the amino acid sequence shown in SEQ ID NO: 2, or a conservative variation thereof, and wherein the presence of the complex indicates the presence of syphilis.

9. (previously amended) The method of claim 1, wherein the immunogenic peptide comprises the amino acid sequence shown in SEQ ID NO: 4, or a conservative variation thereof, and wherein the presence of the complex indicates the presence of yaws.

10. (previously amended) The method of claim 1, wherein the immunogenic peptide comprises the amino acid sequence shown in SEQ ID NO: 6, or a conservative variation thereof, and wherein the presence of the complex indicates the presence of bejel.

11. (original) The method of claim 1, wherein the peptide is bound to a solid phase.

12. (original) The method of claim 1, wherein the peptide is labeled.

13. (previously amended) The method of claim 12, wherein the label comprises an electrochemiluminescent label, a chemiluminescent label, an enzymatic label, a bioluminescent label, or a fluorescent label.

14. (original) The method of claim 1, further comprising incubating the peptide-antibody complex with a second antibody specific for the peptide, wherein the second antibody is labeled with a detectable label and binds to the peptide-antibody complex.

(15) (original) The method of claim 1, wherein the biological sample comprises wounds, blood, tissues, saliva, semen, vaginal secretions, tears, urine, bone, muscle, cartilage, CSF, skin, or any human tissue or bodily fluid.

(16) (currently amended) A method of detecting the presence of *Treponema pallidum* in a biological sample, comprising:

contacting an antibody to an immunogenic *T. pallidum* peptide of an acidic repeat protein with a biological sample, wherein the acid repeat protein comprises the amino acid sequence EVEDDX₁PX₂VVEPASX₃X₄EGGER, wherein X₁ is A or V; X₂ is K or G; X₃ is E or G; and X₄ is R or H; and

detecting formation of a complex between an acidic repeat protein or peptide, if such is in the biological sample, and the antibody, wherein the presence of the complex indicates the presence of *Treponema pallidum*.

17. through 26. (cancelled)

(27) (previously amended) The method of claim 1, wherein the immunogenic peptide comprises an amino acid sequence as shown in SEQ ID NO: 20.

(28) (original) A kit for detecting *T. pallidum* in a biological sample using the method of claim 1, comprising an acidic repeat protein or one or more isolated, immunogenic *Treponema pallidum* peptide of the acidic repeat protein, and instructions for carrying out the method of claim 1.

29. (cancelled)

(30) (previously added) The method of claim 2, wherein the immunogenic repeat region of the acidic repeat protein comprises an amino acid sequence selected from any sequence comprising:

EVEDX₁PX₂VVEPASX₃X₄EGGEREVEDX₁PX₂VVEPASX₃X₄EGGER
(wherein X₁ is A or V; X₂ is K or G; X₃ is E or G; and X₄ is R or H), which has an
immunogenicity specific to *Treponema pallidum*.

31 (previously added) The method of claim 16, wherein the immunogenic peptide
comprises the immunogenic repeat region of the acidic repeat protein.

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32. through 36. (cancelled)